ABSTRACT

A STUDY OF QTd AS AN INDICATOR OF CARDIAC AUTONOMIC NEUROPATHY IN TYPE 2 DIABETES MELLITUS

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ABSTRACT

INTRODUCTION: Cardiac Autonomic Neuropathy (CAN) is often overlooked both in diagnosis and treatment simply because there is no widely accepted single approach to its diagnosis. Currently, Cardiovascular autonomic reflex tests (CART) are the gold standard for diagnosing CAN in persons with DM .It include four tests: (i) heart rate variation to deep breathing (ii) heart rate variation to Valsalva, (iii.) heart rate response to standing (30:15), and (iv) orthostatic

hypotension. But these tests are cumbersome and not easy to perform in every patient. Therefore, there is a need of simple, non-invasive bed side test to detect early autonomic involvement in diabetes.

AIMS AND OBJECTIVES:

1. To determine QTc maximum, QTc mean , QTc minimum QTc dispersion in Type2 diabetic patients.
2. Comparison of QTc maximum, QTc minimum, QTc dispersion, QTc mean in both study group and control group.
3. To study the significance of QTd as an indicator of CAN in Type 2 Diabetes mellitus.

MATERIALS&METHOD: The study was conducted among patients from General Medicine wards of Government Rajaji Hospital, Madurai during the period of February 2016 to July 2016. The study included 100 cases of diabetes and 100 age and sex matched controls. Subjects believed to fulfill all eligibility criteria, and none of the exclusion criteria were included in the study.

METHODOLOGY: A previously designed proforma was used to collect the demographic data ,history and clinical details of the patients.
A battery of five autonomic function tests are done in all cases to assess CAN. A score of 0-2 is assigned to each test. Based on the score obtained from the test, patients are

divided in to three groups-severe ,early and no CAN. A 12 lead ECG is taken after 10 minutes rest in all patients at 50 mm/second speed. RR interval, heart rate, QTc interval, QTc maximum, QTc minimum and QTc dispersion are calculated from the ECG. Comparisons of heart rate, QTc mean, QTc max, QTc min, QTc dispersion are made in various groups and controls and significance assessed by Students t test. Relation between age, sex, and autonomic neuropathy are assessed by Pearson correlation test.

RESULTS: The average age for study group was 54 years. Among the 100 patients studied 55 were males and 45 females . Among the cases studied 62 had CAN .Of these 62, 44 had Grade 2(severe) CAN, 18 had Grade1(early) CAN .Mean heart rate was found to be high in diabetic patients compared to controls .Among the cases the heart rate was higher in those with severe CAN . QT mean ,QT minimum, QT maximum, QT dispersion was significantly more in patients with CAN than those without CAN and controls. Among those with CAN these were found to be significantly more in patients with Grade 2 CAN than those with Grade 1 CAN.

CONCLUSION: Diabetics with CAN had significantly higher QTc mean, QTc maximum ,QTc minimum, QTc dispersion values compared to diabetics without CAN and controls .